2413-123565/541

RUSSIAN PATENT AND TRADEMARK OFFICE

(ROSPATENT)

FEDERAL INSTITUTE FOR INDUSTRIAL PROPERTY

Your Ref. 2413-123565.541

(21) Our Ref. 2000125743/06(027525)

OFFICIAL ACTION

(21) Application No. 2000125743/06(027525)

(22) Filing Date: 29 May 2001

(71) Applicant: GINTER-VAST CORPORATION

(51) IPC[7] F01K 21/04

* * * * *

ISSUES, ARGUMENTS, OBSERVATIONS, SUGGESTIONS

Having undertaken a study in order to investigate thoroughly the documentary evidence pertaining to the above-identified patent application as to the substance thereof, Examination Division has established the following.

1. The invention claimed therein relates to steam-air engines.

What has been disclosed by the Applicant, has been investigated by the Examination Division within the scope of features presented in accordance with independent patent

claims as incorporated into the originally submitted set of patent claims for the invention now pending.

Incidentally, the Applicant has requested to reserve priority with respect to the above-identified patent application as of 13 March 1998 on the basis of Application Ser. No. 09/042,231 filed the first ever with the United States Patent and Trademark Office.

2. A power generating system is known in prior art (see International Publication Number WO No. 94/10427, Int. Cl. F01K 21/04, published on 11 May 1994, 73 pp.), comprising a compressor 10 for compressing ambient air into compressed air having an elevated temperature and pressure (Fig. 5), a combustion chamber 25 connected to the compressor 10, a work engine (50) connected to the combustion chamber, a first injector mechanism 31 for injecting fuel into the combustion chamber 25, and a second injector mechanism 41 for injecting controlled amounts of a non-flammable liquid into the combustion chamber 25.

And, the presently disclosed system distinguishes over the above-referenced system of prior art knowledge in that the combustion chamber is comprised of a first burner zone located at the upstream end of the combustion chamber, at least one additional burner zone located downstream of the first burner zone, an air feed mechanism for admitting a portion of the total available compressed air into the first burner zone, and a second air feed mechanism for admitting

the remainder of the total available compressed air into the one or more downstream burner zones.

However, a combustion chamber is known in prior art (see in the book: Pchelkin, Yu. M., Combustion Chambers of Gas-Turbine Engines. Moscow, "Mashinostroyenie" (Mechanical Engineering) Publishing House, 1973, pp. 162-164, Fig. 9.1), which is comprised of a first burner zone located at the upstream end of the combustion chamber (from a vane swirler located in the plane of the injector 3 and up to the first row of openings in the flame tube 2), at least one additional burner zone located downstream of the first burner zone (from the first to the second row of openings), an air feed mechanism for admitting a portion of the total available compressed air into the first burner zone (said vane swirler), and a second air feed mechanism for admitting the remainder of the total available compressed air into the one or more downstream burner zones (the rows of openings in the flame tube 2).

Both in the presently disclosed system and in the above-referenced system of prior art knowledge, such an addition is intended to optimize the distribution of air throughout the entire length of the burner zone.

Also, a method of operating a power generating system is known in prior art (see International Publication Number WO No. 94/10427, Int. Cl. F01K 21/04, published on 11 May 1994, 73 pp.), the power generating system including an air

compressor 10, a combustion chamber 25 connected to the compressor 10, a work engine 50 connected to the combustion chamber 25, a first injector mechanism 31 for injecting fuel into the combustion chamber 25 and a second injector mechanism 41 for injecting a non-flammable liquid into the combustion chamber 25, by compressing ambient air into compressed air having an elevated temperature and pressure, operating the first injector mechanism 31 to deliver a controlled quantity of fuel to an upstream end of the combustion chamber 25, and operating the second injector mechanism 41 to deliver a controlled quantity of non-flammable liquid to the combustion chamber 25 thereby to control the combustion temperature, to combust the injected fuel and a substantial portion of the oxygen in the compressed air and to transform the injected liquid into a vapor, and to generate a working fluid consisting of a mixture of non-flammable components of the compressed air, fuel combustion products and vapor in the combustion chamber 25 at the desired combustion temperature.

And, the presently disclosed method distinguishes over the above-referenced method of prior art knowledge in that a first quantity of compressed air is delivered to a first burner zone located at the upstream end of the combustion chamber, and a second quantity of compressed air is delivered to at least one additional burner zone located downstream of the first burner zone.

However, a method is known in prior art to be used for operating a power generating system (see in the book: Pchelkin, Yu. M., Combustion Chambers of Gas-Turbine Engines. Moscow, "Mashinostroyenie" (Mechanical Engineering) Publishing House, 1973, pp. 162-164, Fig. 9.1), wherein a first quantity of compressed air is delivered to a first burner zone (the zone of injector and vane swirler) located at the upstream end of the combustion chamber, and a second quantity of compressed air is delivered to at least one additional burner zone located downstream of the first burner zone.

Both in the presently claimed method and in the above-referenced method of prior art knowledge, such an addition is intended to optimize the distribution of air throughout the entire length of the burner zone.

Besides, a method of operating a power generating system is also known in prior art (see International Publication Number WO No. 94/10427, Int. Cl. F01K 21/04, published on 11 May 1994), the power generating system including an air compressor 10, a combustion chamber 25 connected to the compressor 10, a work engine 50 connected to the combustion chamber 25, a first injector mechanism 31 for injecting fuel into the combustion chamber 25 and a second injector mechanism 41 for injecting a non-flammable liquid into the combustion chamber 25, by compressing ambient air into compressed air having an elevated pressure and at a sufficiently

high temperature to ignite the fuel in the combustion chamber, operating the first injector mechanism 31 to deliver a controlled quantity of fuel to an upstream end of the combustion chamber 25, and operating the second injector mechanism 41 to deliver a controlled quantity of liquid to the combustion chamber 25, and delivering a controlled amount of compressed air to at least one location in the combustion chamber thereby to control the combustion temperature, to combust the injected fuel and a substantial portion of the oxygen in the compressed air and to transform the injected liquid into a vapor, and to generate a working fluid consisting of a mixture of nonflammable components of the compressed air, fuel combustion products and vapor in the combustion chamber 25 at the desired combustion temperature.

In the opinion held by the Examination Division, what is disclosed by the Applicant in independent claims 1 and 15, seems to get reduced to supplementing a known plant that is identical to the most relevant prior art prototype with respect to the presently claimed invention, by adding thereto some components known from the state of prior art in the related field of engineering as taught by the references cited herein above, in order to attain thereby the engineering effect in respect of which a person skilled in the art can establish beforehand what influence such added components may actually have, and all this is indicative of the fact that, in accordance with the provisions under Paragraph 19.5.3(3)

of the Regulations for Making up, Filing and Investigating an Application for Granting a Patent for an Invention, which have been made effective since 16 October 1998 (hereinafter referred to as Regulations-1), the presently claimed invention as defined in the above-mentioned independent patent claims fails to comply with such a requirement of patentability as inventive step.

And, the Examination Division is of the opinion that a method has been revealed when studying the state of prior art in the related field of engineering, which is known to have intrinsic thereto such features which are identical to all the features included into independent claim 28 incorporated into the set of patent claims as suggested by the Applicant, so that in connection with this, it should be pointed out that, in accordance with the provisions under Paragraph 19.5.2(3) of Regulations-1, the presently claimed invention as disclosed in this independent patent claim cannot be recognized as complying with such a requirement of patentability as novelty.

Thus, in accordance with the provisions under Paragraph 19.5.4(1) of Regulations-1, the Applicant should express his opinion about reasonability, if any, of further proceedings with respect to the above-identified patent application and submit, if such reasonability is duly substantiated, a newly amended set of patent claims for the present invention, which is to be made up strictly on the basis of only the original

documentary evidence pertaining to the above-identified patent application.

And, when making appropriate amendments to the pending set of patent claims for the present invention in preparing this new set of patent claims, the Applicant should take into account that the features of claim 2, claim 17 and claim 30 incorporated into the pending set of patent claims are well known to those skilled in the art from the state of prior art known to exist in the related field of engineering (see, for instance, in the book: Pchelkin, Yu. M., Combustion Chambers of Gas-Turbine Engines. Moscow, "Mashinostroyenie" (Mechanical Engineering) Publishing House, 1973, p. 172), whereas the features of claim 16 and claim 29 incorporated into the pending set of patent claims are also well known to those skilled in the art from the state of prior act known to exist in the related field of engineering (see, for instance, US Patent No.5,513,488 A, Int. Cl. F02C 3/30, published on 7 May 1996, 8 pp.).

Enclosure: The title page, pp. 162-164 and p. 172 from the book by Pchelkin, Yu. M. cited herein above, 1 copy.